



YASHODA SHIKSHAN PRASARAK MANDAL, SATARA
YASHODA TECHNICAL CAMPUS
DEPARTMENT OF E & TC ENGINEERING

DEC 2024

....TECHNICAL MAGAZINE

Department of Electronics & Telecommunication Engineering
Technical Magazine
(YASHOTECH-ELECTRONICS)
2024-25 [ODD SEM]



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- Computer Engineering
- Electrical Engineering
- Electronics & Telecommunication Engineering
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**Today's reader
can be a tomorrow's
leader !**



PRESIDENT'S DESK

I welcome you to YSPM's Yashoda Technical Campus, Satara, an Institution which inculcates true values while disseminating quality education for shaping the career of our students. All our institutes are approved by the concerned statutory bodies and fulfill all the norms and standards laid down by them. Our technical campus is located in a lush, green, pollution free, picturesque environment. Our institutes have well qualified, experienced and student caring faculty, well equipped laboratories, spacious lecture halls and tutorial rooms, well maintained rich library, e-library, Wi-Fi Campus, Computer with Internet Facility, and a play ground with sports facilities. We emphasize on overall personality development of our students. Our faculty pays attention to each students a platform to excel not only in academics but also in co-curricular and a multi disciplinary study culture. Amenities provided by our institutes include transport facility, hostel facility, reprographics facility, canteen, STD PCO, medical centre, sports centre etc. We are committed to import value based quality education along with development of positive attitude, skills and abilities to apply knowledge in order to meet the challenges of future. I extend my best wishes for your bright and prosperous future.

**Prof. Dasharath Sagare
Founder President
YSPM - YSS, Satara**



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WORDS FROM THE PRINCIPAL

It gives me immense pleasure and delight to know that the Dept of E&TC, YTC have mooted up a time needed, need based and innovative move, to bring out a domain specific annual magazine, in the name and style of Technical Magazine (YASHOTECH-ELECTRONICS) while involving all the faculty, staffs, students and the Electronics Engineering fraternity.

The objectives, as spelled out by the Editorial board of the newly emerging magazines are quite sublime, ennobling as well as triggering of and enlightening about the basic concepts and philosophy of knowledge Engineering among all the knowledge seekers on all the latest vital, pivotal and critical aspects of the profession in the field of E&TC and its technology.

Being the Head of the Institution, I congratulate the head of the Dept., the faculty, staffs and students of the Dept for their keen and vigorous effort in widening the knowledge base.



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Vision of the Department

To be an excellent technological hub in the field of Electronics and Telecommunication Engineering ensuring state of the art knowledge transfer through teaching and research activities to meet educational, societal, ethical need of the nation.

Mission of the Department

- To provide cutting edge platform to explore innovative, creative and entrepreneurial leadership qualities among the students.
- To be hungry for academic excellence through innovative procedure.
- To inculcate leadership quality and ethical values.
- To accept/ face technological challenges through the continuous efforts in collaboration with industry.



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PEOs

Graduates will able to–

- To equip graduates with a strong foundation in engineering sciences and Electronics & Telecommunication Engineering fundamentals to become effective collaborators, researchers and real-time problem solver with technical competencies.
- Perceive the limitation and impact of engineering solutions in social, legal, environmental, economic and multidisciplinary contexts.
- Excel in Industry/technical profession, higher studies, and entrepreneurship exhibiting global competitiveness.

PSOs

- Apply basic knowledge related to Electronic Circuits, Embedded & wireless communication Systems and Signal Processing to solve engineering/ societal problems in the field of Electronics and Telecommunication Engineering.
- Recognize and adapt to technical developments and to engage in lifelong learning and develop consciousness for professional, social, legal and ethical responsibilities.
- Excellent adaptability to the changing industrial and real world requirement.



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POs

1. Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems. (Engineering knowledge)
2. Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences. (Problem Analysis)
3. Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations. (Design and Development of Solutions)
4. Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions. (Conduct Investigations of Complex Problems)
5. Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modelling to complex engineering activities with an understanding of the limitations. (Modern Tool Usage)
6. Apply reasoning informed by the contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice. (The Engineer and Society)



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7. Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development. (Environment and Sustainability)
8. Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice. (Ethics)
9. Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings. (Individual and Team Work)
10. Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions. (Communication)
11. Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments. (Project Management and Finance)
12. Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. (Life-long learning)



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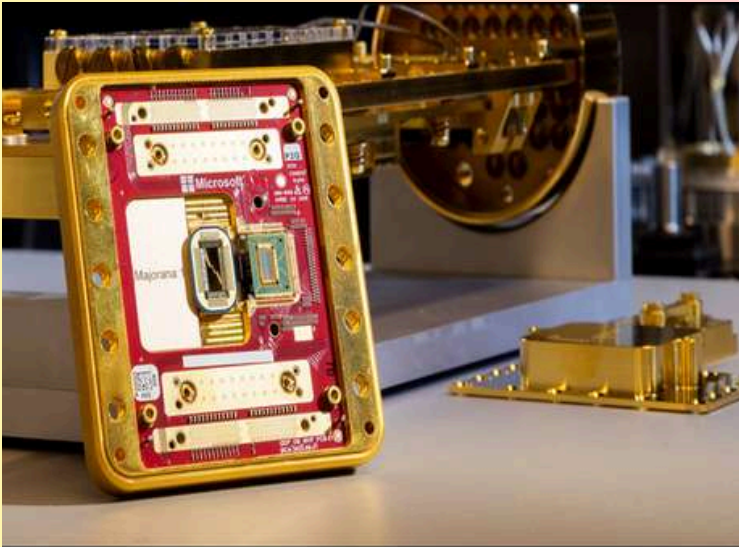
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Microsoft's Majorana 1 chip carves new path for quantum computing

Microsoft today introduced Majorana 1, the world's first quantum chip powered by a new Topological Core architecture that it expects will realize quantum computers capable of solving meaningful, industrial-scale problems in years, not decades.

It leverages the world's first topoconductor, a breakthrough type of material which can observe and control Majorana particles to produce more reliable and scalable qubits, which are the building blocks for quantum computers.



This new architecture used to develop the Majorana 1 processor offers a clear path to fit a million qubits on a single chip that can fit in the palm of one's hand, Microsoft said. This is a needed threshold for quantum computers to deliver transformative, real-world solutions – such as breaking down microplastics into harmless byproducts or inventing self-healing materials for construction, manufacturing or healthcare.



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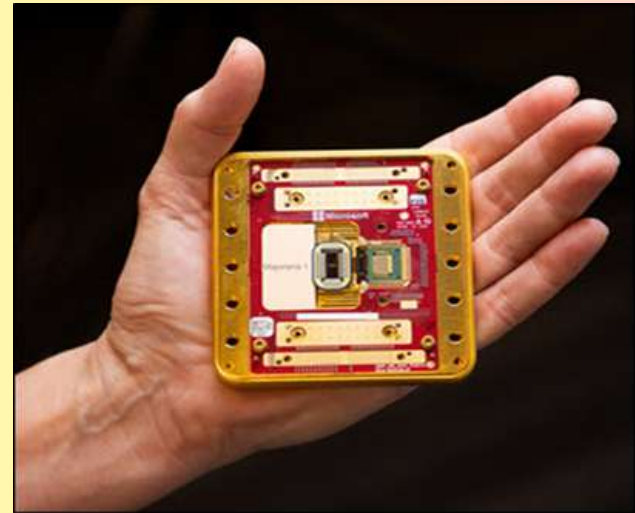
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“Whatever you’re doing in the quantum space needs to have a path to a million qubits. If it doesn’t, you’re going to hit a wall before you get to the scale at which you can solve the really important problems that motivate us,” Nayak said. “We have actually worked out a path to a million.”

This breakthrough required developing an entirely new materials stack made of indium arsenide and aluminum, much of which Microsoft designed and fabricated atom by atom. The goal was to coax new quantum particles called Majoranas into existence and take advantage of their unique properties to reach the next horizon of quantum computing, Microsoft said.

This progress validates Microsoft’s choice years ago to pursue a topological qubit design – a high risk, high reward scientific and engineering challenge that is now paying off. Today, the company has placed eight topological qubits on a chip designed to scale to one million.

Aditya Pawar
--Final Year



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The Tejas aircraft

The Tejas aircraft is a lightweight, multirole combat aircraft designed by the Aeronautical Development Agency (ADA) and manufactured by Hindustan Aeronautics Limited (HAL) for the Indian Air Force

The Tejas offers the Indian Air Force (IAF) a significant boost through its indigenous design and production, fostering self-reliance in defense manufacturing and reducing dependence on foreign suppliers. Its cost-effectiveness, compared to other modern fighters, makes it a valuable asset for meeting operational needs. The aircraft's lightweight and agile nature, coupled with its multirole capabilities, provide the IAF with a versatile platform for various missions, from air-to-air combat to ground attacks and reconnaissance.



Furthermore, the Tejas boasts advanced avionics, including a digital fly-by-wire system and modern radar, enhancing its combat effectiveness. Its ability to carry a diverse range of weaponry, along with a reduced radar cross-section due to its size and composite materials, further strengthens its capabilities.



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Hindustan Aeronautics Limited (HAL) is an Indian state- owned aerospace and defense company headquartered in Bangalore. It is one of the largest aerospace companies in Asia and is primarily involved in the design, development, manufacture, and maintenance of aircraft, helicopters, engines, and related equipment. Established in 1940, HAL has played a crucial role in the growth of India's aerospace industry and has been involved in several key projects, including the development of the Tejas Light Combat Aircraft.



Karan Supekar, SY



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Benefits of Educational Robotics

1. Fosters Logical Thinking and Problem Solving

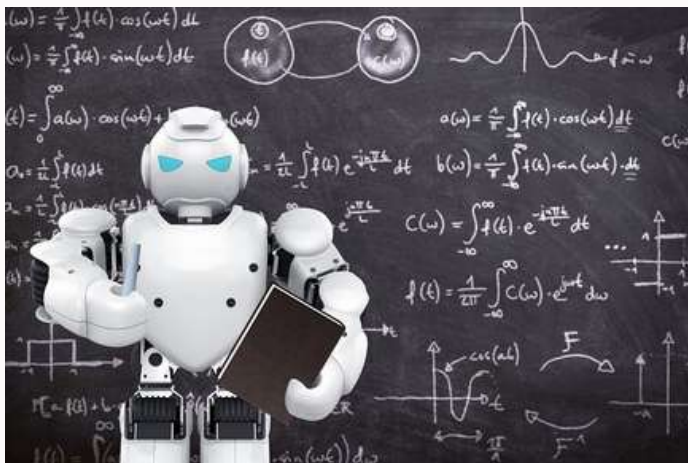
Educational robotics involves young learners in creating, programming, setting up, and controlling robots. This activity requires the use of logical thinking and problem-solving skills, in other words, the development of computational thinking.

2. Encourages Creativity and Innovation

Robotics and programming are often seen as "closed" disciplines that limit children's creativity. However, they actually have the opposite effect by stimulating creativity and ingenuity from the early stages of schooling.

3. Facilitates Practical STEM Learning

Educational robotics is an effective way to introduce scientific and technological concepts in a practical and tangible way. Students can acquire knowledge of mechanics, electronics, coding and other STEM disciplines while interacting and having fun with robots.



Shrawani Gaikwad, TY



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Satellite TV

Satellite TV is a type of television programming that is wirelessly delivered to TV sets across the world via a network of radio signals, communications satellites, broadcast centers and outdoor antennas. Broadcast signals are transmitted from satellites orbiting the Earth and received by local and regional satellite TV systems.

How Satellite TV service works?

Satellite TV technology makes use of specialized antennas known as satellite dishes. These satellite dishes transmit signals to a satellite receiver such as a set-top box or satellite tuner module within a TV set. The programming source transmits signals to a satellite provider broadcast center and these waves are then picked up by a compact satellite dish and broadcast onto television sets.



Anuradha Mane, B.Tech



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NATURE

The word nature is derived from the Latin word natura, or "essential qualities, innate disposition", and in ancient times, literally meant "birth". Natura is a Latin translation of the Greek word physis, which originally related to the intrinsic characteristics that plants, animals, and other features of the world develop of their own accord. The concept of nature as a whole, the physical universe, is one of several expansions of the original notion



Prathibha Patel, B.Tech



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